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TITLE: SEMICONDUCTOR DEVICE AND ITS MANUFACTURE

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ABSTRACT:

PROBLEM TO BE SOLVED: To simplify a production process and to improve throughput and yield by commonly constituting a process for forming regions for gettering catalyst elements and a process for forming the lower electrodes of auxiliary capacitors.

SOLUTION: The mask insulating film 103 on an amorphous silicon film 102 is provided with first apertures 104, 105 and a nickel-contg. layer 106 is formed by applying a soln. contg. nickel as the catalyst element for assisting the crystallization of silicon thereon (A). The nickel is diffused into the amorphous silicon film 102 by a heat treatment and is crystallized, by which crystal silicon films 107 to 110 are formed (B). The second apertures 111 are then formed at the mask insulating film 103 and phosphorus ions are added as a group 15 element to getter the catalyst element (C). Consequently, the phosphorus added regions 112, 113 under the apertures 104, 105 function as the gettering regions of the nickel and the phosphorus added regions 114 under the

apertures 11 function as the gettering regions simultaneously when the regions turn to the lower electrodes of the auxiliary capacitors.

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